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A CAPABILITY MATURITY MODEL OF INFORMATION TECHNOLOGY OUTSOURCING RELATIONSHIPS: A VENDOR PERSPECTIVE

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Abstract

Information technology outsourcing relationships between clients and suppliers are generally embedded into formal contracts. The empirical literature on contracting usually assumes that contractual completeness is difficult to achieve due to the transaction costs of describing—or of even foreseeing—the possible states of nature in advance. Little research has been done on the on-going set of processes during the life of the client/supplier relationship in the post phase of the contract where unforeseen contingencies and events emerge. Hence, a process improvement framework for studying IT outsourcing relationships is needed to provide more detailed metrics for assessing and managing the maturity level of IT outsourcing relationships. The purpose of this paper is to develop and validate an evolutionary process improvement model to manage relationships between clients and suppliers in the context of information technology outsourcing. We call this model the Capability Maturity Model of Information Technology Outsourcing Relationships (CMMITOR). The model presents the key elements of maturity in IT outsourcing relationships from an ad hoc stage, immature relationship management processes to highly mature and disciplined ones. The preliminary results show that the process-view of IT relationships is suited for this purpose. Key process areas were identified and refined through a card sorting procedure. The validation of the resultant model is underway through a field study of ten IT outsourcing relationships. Implications for research and practice are discussed.

Keywords: IT Outsourcing, Capability Maturity Model, Business Process Improvement

1. INTRODUCTION

Information technology (IT) outsourcing has been defined as "a decision taken by an organization to contract out or sell the organization's IT assets, people and/or activities to a third party supplier" (Kern and Willcocks 2000, p. 322). Hence, IT outsourcing entails the establishment, cultivation, and management of an interorganizational relationship between the client and the supplier. It is, therefore, an intrinsically relational approach to the provision of IT services (Klein and Rai, 2009; Lee, Miranda, and Kim 2004; Williamson, 2005). Since IT outsourcing is rapidly becoming pervasive in today's organizations, firms need diverse and high-quality systems and services to compete and also survive in a rapidly changing business environment (Choudhury and Sabherwal, 2003). In addition,

outsourcing of information services tends to be more complex as information technologies now permeate the organization and shape most of its processes in one way or another (Kern and Willcocks 2002; Lee and Kim, 2005). Thus, IT outsourcing relationships have come to take on a mission critical status and must be managed accordingly. Organizations must adopt a distinctive relationship management approach in their IT outsourcing initiatives in order to reflect some of the unique aspects of outsourcing information services. Research has shown that once the contracting parties (client/supplier) have reached a contract agreement, they become concerned about how to efficiently manage the ensuing relationship (Klein and Rai, 2009). Hence, subsequent management efforts must be focused on the operationalization of the contract, which reflects in part the client's outsourcing objectives, and determines what the supplier needs to perform to receive its share of the deal. Of paramount importance is the management structure that needs to be adopted and put into practice to operationalize, manage, develop, and maintain the relationship. Information systems (IS) managers increasingly recognize the need to move beyond the simple establishment of outsourcing partnerships by formally recognizing these relationships as a part of their overall strategy. Adequate resources need to be committed and positions created to plan, organize, and manage this activity (Klein and Rai, 2009; McKeen and Smith 2001).

The importance of striving for an effective relationship management approach of IT outsourcing relationships is further emphasized by recent findings. Notably, it was evaluated that in 2003, roughly half of IT outsourcing projects would fail because they had not delivered the expected value (Lui 2003). Poor communication between the client and the supplier, the constant change in business plans, and the lack of a plan to manage the outsourcing relationship were cited as the main causes of customer dissatisfaction. The post-contract management phase – in which the outsourcing relationship takes its true shape – was shown to be extremely problematic to plan and manage (Goo et al., 2009; Kern and Willcocks 2002). Surprisingly, the area in IT outsourcing that has receiving the least amount of research attention so far is the outsourcing relationship (Lee and Kim, 2005; McKeen and Smith 2001). Until quite recently, most IT outsourcing research focused primarily on its antecedents, benefits, risks, scope, performance, and contracting, while the relationship management aspect was often neglected (McKeen and Smith 2001; Lee et al., 2003; Bahli and Rivard, 2003).The pervasiveness of information technology outsourcing in business practices and the increased reliance of companies on outsourcing partners have turned management attention to a fresh set of skills: the ability to manage interorganizational relationships with outside service providers (Goo et al., 2009; Kishore et al. 2003; McFarlan and Nolan 1995; Klepper and Jones 1995).

These interorganizational relationships are not only embedded into formal contracts but also an on-going set of processes through the life of the relationship. Hence, a process improvement framework more in line with established models like the Capability Maturity Model or better known as CMM

(Paulk et al. 1993) for studying IT outsourcing relationships is needed to provide more detailed metrics for assessing and managing the maturity level of IT outsourcing relationship (Solli-Saether and Gottschalk, 2008). The objective of this paper aims to develop and validate such framework from a vendor's perspective. This model will notably provide an analysis methodology that can be used reliably to quantitatively assess client organizations' maturity level of IT outsourcing relationship management practices and processes.

This study makes two significant contributions. First, we use a process-based approach of interorganizational relationships based on the capability maturity model. Although the process-view has been studied in IS research, a significant proportion of this work has been limited to in-house IS projects. Relatively less work has examined IT outsourcing relationships from a process and a vendor's perspective, particularly in using the well-known capability maturity models. This study intends to fill this gap by building a capability maturity framework of IT outsourcing relationships based on the process-view as suggested by CMM from the vendor perspective. Second, we develop and validate such model. The CMMITOR presents the key elements of an effective client/vendor IT outsourcing relationship management approach in describing an evolutionary improvement stages from ad hoc, immature relationship management processes to mature, disciplined ones. The focus of the framework is to have a standard set of processes that are followed across a firm's IT outsourcing relationships. Thus, the model provides a structured way to defining a process capability, allowing managers to look for ways and means to analyze, assess, and continuously improve the relationship management processes. The remainder of this paper is organized as follows. A theoretical background is presented next, followed by the presentation of our developed research framework. Section 3 describes the research methodology used. A conclusion and further research conclude this paper.

2. THEORETICAL BACKGROUND

2.1. Information Technology Outsourcing Relationships

Information technology outsourcing research has greatly evolved over time. The evolution of the issues of IT outsourcing along with the field's supporting research allows for a better perspective of how this phenomenon has changed and evolved from simple client make-or-buy decisions to complex partnerships between clients and suppliers (Lee et al., 2003; Lee and Kim 2005). The growing adoption and increasing complexity of IT outsourcing enterprises brought about a growing concern for the management of outsourcing contracts between client organizations and their suppliers. Many companies increasingly seek to expand the traditional role of outsourcing relationships to include improved services, increased financial performance, and even the development of new lines of

business (Tian et al., 2008). For instance, IT outsourcing is becoming a prevalent e-business model for firms that wish to extend their operations online or throughout their supply chain. Companies are outsourcing all elements of the e-commerce value chain, including systems development and integration, payment processing, market design, customer management, and entire ERP systems (Bryson and Sullivan 2003). As the spectrum of outsourced activities continues to grow, the importance of contract management with the supplier must constantly be addressed along with contractual design concerns (Klein and Rai, 2009; Greenberg et al., 2008). Potential inappropriate behaviours on the part of the service provider must be taken into consideration by the client and mitigated through contract clauses and contract management practices aimed at reducing unexpected contingencies, possible cost increases, and opportunistic behaviour (Bartelemy, 2003, Williamson, 2005).

However, well-specified legal contracts do not guarantee flexible client-supplier relationships based on mutual trust (Brereton, 2004; Greenberg et al., 2008). Firms looking for flexibility in their relationships with suppliers should manage their relationships less as a contract and more as a partnership (Goo et al., 2009; Lee et al., 2003; McFarlen and Nolan 1995). This argument emphasizes the evolution of the nature of information technology outsourcing from contractual to partnership-based relationships (Lee et al., 2003). The role of the service provider was previously limited in terms of both the size of the contract and the type of service provided. Nowadays, the nature of the client-supplier relationship has become one of strategic importance to both partners (Rossetti and Choi, 2005; Williamson, 1985, 2005). Client firms must now leverage key parts of the value chain by identifying and contracting with strong partners that can complement their in-house skills, and allow these firms be able to focus on their core competencies and generate value for their stakeholders (Gottschalk and Solli-Saether, 2006). Therefore, it is of a paramount importance to address and understand the stages through which a client/supplier relationship develop (Goo et al., 2009; Shi et al., 2005). The nest sections decribes the process-based view of IT outsourcing relationships.

2.2 Process-Based View of IT Outsourcing Relationships

A business process is simply defined as of how an organization does its work. It is the set of activities that it pursues to accomplish a particular objective for a given customer that is either internal or external to the firm (Davenport 2005). Processes may be very narrow, such as order entry, or relatively large and interorganizational (i.e., IS development). The shift from task-oriented thinking to a process-centric view of the organization has been underway for several years. The concept of business process orientation is based notably upon the work of Deming (Deming 2000) and Hammer and Champy (Hammer and Champy, 1990). Process-based thinking aligns the tasks, activities, and behaviours of individuals within an organization toward achieving a common goal. Firms organize

around outcomes, not tasks (Hammer and Champy, 1990). Along with the notion of process orientation in organizations, came the idea of process standards and process improvement. This was accomplished with the intention to enhance the firm's overall performance through a management strategy aimed at embedding awareness of quality in all organizational processes (Davenport 2005; Mani et al., 2010).

The variations in both management practices and the outcomes of the outsourcing relationship are enormous, in part because no detailed process activity or flow standards exist (Davenport 2005). Not only has the growth of business outsourcing been inhibited by the fact that there are virtually no standards for how most business processes should be performed but the lack of a well-defined outsourcing process management framework also limits our understanding of the natural consequence of outsourcing: the client-supplier relationship that follows. Moving towards clear and well-defined processes for impartially assessing outsourcing relationship management practices in any one organization is essential to address these concerns. Organizations that are engaged in IT outsourcing relationships need a framework that can be used reliably to quantitatively assess their current level of relationship management practices and processes. The development of such a model would allow solid comparative studies on IT outsourcing relationship management practices across organizations while providing support for any firm that intends to evaluate the business case for adopting well-defined processes in managing their service providers.

3. A CAPABILITY MATURITY MODEL FOR IT OUTSOURCING RELATIONSHIPS

In this paper we adopted a process-orientation view of organizations as a basis for developing a maturity framework for the management of IT outsourcing relationships. The Capability Maturity Model for Information Technology Outsourcing Relationships or CMMITOR focuses on the various client/vendor relationship management processes involved in outsourcing information technology. The theoretical foundation upon which we build CMMITOR is the Capability Maturity Model Integration (CMMI) (Chrissis et al., 2003). Since we define IT outsourcing relationships as an evolutionary process that can be controlled, managed, and continually improved, process improvement approach is proven particularly valuable for assessing and enhancing the various processes that come into play in technology environments. In this study, we extend the evolutionary process-improvement paradigm to the field of information technology outsourcing in adopting an inter-organizational process-based perspective.

In this study, the CMMI framework, developed by the Software Engineering Institute (SEI) at Carnegie Mellon University, is used as a guide for proposing and organizing IT outsourcing relationship management best practices. We developed a model based on the five levels of the staged

version of the CMMI. Our underlying premise is that the effectiveness of an IT outsourcing relationship is highly influenced by the quality of the process used to develop and maintain it. The ITOCMM embodies this principle. We looked at the process areas that comprise the five levels of the CMMI and mapped them to IT outsourcing relationship management processes. The ITOCMM presents the key elements of an effective IT outsourcing relationship management approach in describing an evolutionary improvement path from ad hoc, immature relationship management processes to more mature, disciplined ones. These five stages are briefly described below.

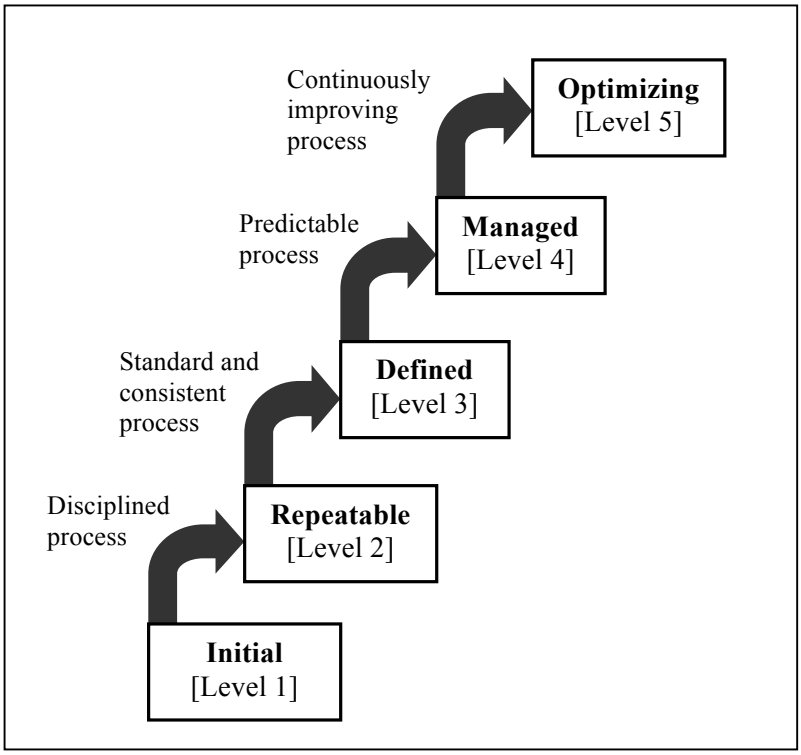

Figure 1. Adapted CMMITOR Maturity Levels

3.1. Maturity Level 1: The Initial Level

At this level, IT outsourcing (ITO) relationship management processes are often chaotic and ad hoc. The firm does not provide a stable environment to support relationship management processes with its service provider. Even if some processes have been decided upon, they are not carefully followed or enforced. Services and/or product functionality and quality are frequently compromised to meet deadlines. There is little understanding by the client organization of the processes involved in the management of the outsourcing relationship. There is a tendency for organizations to abandon processes in a time of crisis and to fail in attempting to repeat past successes. However, in spite of this, Level 1 organizations frequently do have some capacity to manage relationships with their

counterpart. However, suppliers' delivery of services and/or products may often be over budget and over schedule having been made possible by the efforts and heroics of a few managers.

3.2. Maturity Level 2: The Repeatable Level

Policies for managing IT outsourcing relationships and procedures to implement these strategies are decided upon and established at the Repeatable Level. Moreover, it is at this level that relationship management concerns are explicitly addressed in client organizations. Processes are established notably to track cost, schedule, and service delivery and/or product functionality. Realistic plans and relationship commitments are made possible based on the client firm's past experiences with previous IT outsourcing contracts. Earlier relationship successes can now be more easily repeated and existing practices are retained and applied even during times of stress.

3.3. Maturity Level 3: The Defined Level

At maturity level 3, processes are well defined and understood, and are described in standards, procedures, tools, and methods. The firm's set of standard processes, which is the basis for maturity level 3, is established and improved over time. These relationship management processes are used to establish a level of consistency across the organization's IT outsourcing relationships. Documentation is a key activity at the Defined Level as relationship management processes are documented, standardized, and integrated into a coherent process for the client organization. Relationship-centric standardized processes provide the firm with the foundation for major and continuing progress in managing its outsourcing relationships. Relationship management is now accomplished more effectively using standardized processes which allow for stable and repeatable relationship management practices.

3.4. Maturity Level 4: The Managed Level

The establishment and use of detailed measures of the relationship management processes and relationship quality are conducted at the Managed Level. The organization establishes quantitative objectives for quality and process performance and uses them as criteria in managing its relationship management processes. Ultimately, quantitative objectives are based on the needs of the customer. A relational measurement program allows for the specification of quantitative quality goals for relationship management processes and supplier service delivery and/or product development. Measurement data on process performance are collected and provide the means for evaluating and controlling variations in relationship management process performance. Using these measurements, an organization's relationship management processes become quantifiable and predictable and process variations beyond prescribed limits can be quickly identified and dealt with. In short, relationship management quality and process performance is understood in statistical terms and is managed throughout duration of the outsourcing contract.

3.5. Maturity Level 5: The Optimized Level

Continuous process improvement is made possible at the Optimized Level. Having achieved a quantitative understanding of its relationship management processes at Level 4, the organization can now proceed with a continuous improvement of its processes. Through the measurement tools established at the Managed Level, the client organization can now identify weaknesses in its relationship management processes and proactively modify them. Any problems in the client/supplier relationship are analyzed to determine their causes. Relationship management processes can also be evaluated and updated to prevent known types of problems from recurring. All of this knowledge is disseminated and applied in other IT outsourcing relationships. At the optimized level, organizations continuously strive to improve their existing processes and innovate using new technologies and methodologies.

4. RESEARCH METHODOLOGY AND PRELIMINARY RESULTS

Prior research advocates for the importance of dyadic research designs to investigate phenomena associated with interfirm relationships (Straub et al. 2004). Focusing on the relationship itself, we collect data from both parties (client and suppliers). In this study, our focus is on the supplier side. The current study utilized interview for data collection. Based on comprehensive review of the literature, we developed the main key process areas for CMMITOR. First, we performed a card sorting procedure. The measures used were refined via a card-sorting procedure (Moore and Benbasat 1991) performed by ten experienced IT professionals who are familiar with both CMMI and IT outsourcing arrangement. Each process area was placed on a card. Each judge was given all the cards as well as a brief description of each of the five stages of CMMITOR. Then we asked each judge to map each card into the appropriate stage. To assess the reliability of the judges' sorting, the level of agreement of each pair of judges was assessed with Cohen's Kappa (Cohen 1960). All levels of agreement were found to be high 0.72 where the threshold was 0.65. The instrument was pre-tested with a total of 12 IT outsourcing professionals who attended an advanced seminar of five days on IT outsourcing. The instrument was tested for clarity of content, scope, and purpose (content validity). The information obtained in this phase serves as the basis for the development of our instrument. Because of space limitation, summarized results of this exploratory phase of the present study are shown in Figure 2. Subsequently, the second phase of this study uses data from the first phase to develop and validate CMMITOR instrument. At this stage, we use interviews with ten IS senior managers. Each of these managers has at least seven years experience with IT outsourcing and /or capability maturity models. All respondents were assured that their responses would remain confidential and that results would be reported only in aggregate, thereby addressing privacy concerns and minimizing potential bias in self-reported data (Mani et al., 2010). We are now in the middle of

interviews and, based on the first four interviews, we expect a further refinement of the developed CMMITOR.

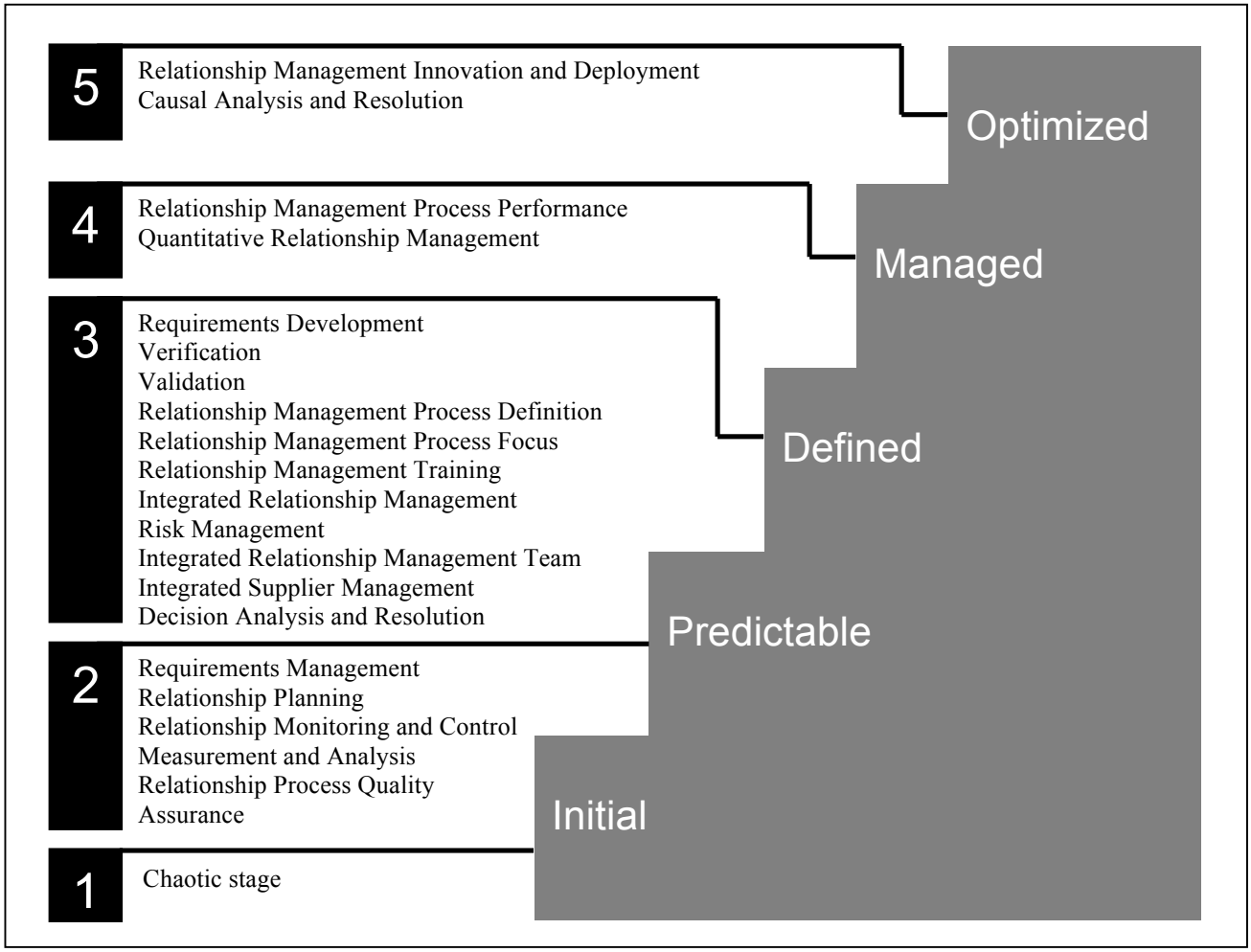

Figure 2. CMMITOR Process Areas

5. CONCLUSION AND FURTHER RESEARCH

Our study adds to the literature on IT outsourcing relationships, and emphasizes the importance of the use of the process-view to examine such relationships. We demonstrate that CMMITOR, built based on the same premises of the capability maturity models, can help guide organizations in the improvement of their IT outsourcing relationship management processes. Based on the positive

outcomes of such models in various business settings, we posit that the CMMITOR will significantly and positively influence the outcome of IT outsourcing contracts. By conducting an extensive literature review and consulting with ten panels of experts, we developed a model with a high level of content validity. The complete validation of this model or framework, including convergent and divergent validity, requires data collection in the field which is now underway. The outcome of the next stage of this research will be a further refinement of the framework and the development of an operational measurement instrument of the maturity of IT outsourcing relationships.

This research entails important theoretical and practical implications. On the theoretical side, we demonstrate that process improvement approach is a useful approach to model the maturity of IT outsourcing relationships. The development of process areas at each of the five levels of CMMITOR will help researchers develop further this model and examine different levels of maturity of IT outsourcing relationships. The preliminary results of our research also entail important practical implications. More and more firms are investing in managing their relationships with their counterpart in IT outsourcing arrangement. These preliminary findings contribute to the practice of IT outsourcing by stressing the importance of formal, managed and integrated CMMITOR. The developed model is designed to help firms assess their own maturity level as well as their counterpart so both parties are able to achieve higher rates of IT outsourcing success.

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